

CLAIMS

1 1. A cutting head assembly comprising:
2 a cutting head including a first set of returns adjustably opposing a second
3 set of returns;
4 a cutting member including a first end a second end, a first plurality of
5 opposing bends, a plurality of leg segments interconnecting a second plurality of
6 opposing bends, the first plurality of opposing bends positioned about the first set
7 of returns and the second plurality of opposing bends positioned about the
8 second set of returns, the plurality of leg segments extending across an aperture
9 formed through the cutting head, the first end and the second end of the cutting
10 member secured to the cutting head; and
11 a cutting member tensioning device adjustably attaching the first set of
12 returns and the second set of returns for adjusting a distance between the first set
13 of returns and the second set of returns for tensioning the cutting member.

1 2. The cutting head assembly of Claim 1 wherein the cutting member
2 tensioning device further comprises a screw adjustably attaching the first set of
3 returns and the second set of returns for adjusting a distance between the first set
4 of returns and the second set of returns for tensioning the cutting member along a
5 plane substantially parallel to a longitudinal axis of the plurality of leg segments.

1 3. The cutting head assembly of Claim 1 wherein the first set of returns
2 and the second set of returns each comprise a height substantially equal to a
3 width of cutting member for transferring a substantially equal force across the
4 width of the cutting member.

1 4. The cutting head assembly of Claim 1 wherein the first set of returns
2 and the second set of returns each further comprise a bearing face lying in a
3 plane substantially perpendicular to a longitudinal axis of the plurality of leg
4 segments for imparting a substantially equally tensile force across the width of
5 the cutting member.

1 5. The cutting assembly of Claim 1 wherein the cutting member
2 tensioning device adjusts the distance between the first set of returns and the
3 second set of returns imparting a tensile force in excess of 100,000 pounds per
4 square inch along the cutting member.

1 6. The cutting assembly of Claim 1 wherein the cutting member
2 tensioning device further comprises a screw including a longitudinal axis, the
3 longitudinal axis of the screw oriented along a plane substantially parallel to a
4 longitudinal axis of the plurality of leg segments, and the screw adjustably
5 attaching the first set of returns and the second set of returns for adjusting a
6 distance between the first set of returns and the second set of returns for
7 tensioning the cutting member along a plane substantially parallel to the
8 longitudinal axis of the screw.

1 7. The cutting head assembly of Claim 1 wherein the cutting member
2 tensioning device further comprises a pair of screws having, each of the pair of
3 screws including a longitudinal axis, the longitudinal axis of each of the pair of
4 screws oriented along a plane substantially parallel to a longitudinal axis of the
5 plurality of leg segments, and each of the pair of screws adjustably attaching the
6 first set of returns and the second set of returns for adjusting a distance between
7 the first set of returns and the second set of returns for tensioning the cutting
8 member along a plane substantially parallel to the longitudinal axis of each of the
9 pair of screws.

1 8. A cutting head assembly comprising:
2 a tensile cutting head including an aperture formed through the tensile
3 cutting head cross section, the tensile cutting head including a first set of returns
4 adjustably opposing a second set of returns;
5 a cutting member including a first end a second end, a first plurality of
6 opposing bends, a plurality of leg segments interconnecting a second plurality of

7 opposing bends, the first plurality of opposing bends positioned about the first set
8 of returns and the second plurality of opposing bends positioned about the
9 second set of returns, the plurality of leg segments extending across an aperture
10 formed through the cutting head, the first end and the second end of the cutting
11 member secured to the cutting head; and

12 a cutting member tensioning device including a pair of screws having,
13 each of the pair of screws including a longitudinal axis, the longitudinal axis of
14 each of the pair of screws oriented along a plane substantially parallel to a
15 longitudinal axis of the plurality of leg segments, and each of the pair of screws
16 adjustably attaching the first set of returns and the second set of returns for
17 adjusting a distance between the first set of returns and the second set of returns
18 for tensioning the cutting member along a plane substantially parallel to the
19 longitudinal axis of each of the pair of screws.

1 9. The cutting head assembly of Claim 8 wherein the first set of returns
2 and the second set of returns each comprise a height substantially equal to a
3 width of cutting member for transferring a substantially equal force across the
4 width of the cutting member.

1 10. The cutting head assembly of Claim 8 wherein the first set of returns
2 and the second set of returns each further comprise a bearing face lying in a
3 plane substantially perpendicular to a longitudinal axis of the plurality of leg
4 segments for imparting a substantially equally tensile force across the width of
5 the cutting member.